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THE LATE DUKE OF ARGYLL.

George Douglas, Eighth Duke of Argyll, K.G., K.T. (1823 1900). Autobiography and Memoirs. Edited by the Dowager Duchess of Argyll. Vol. i., pp. xi+602; Vol. ii., pp. vii+635. (London: John Murray, 1906.) Price 36s. net.

THE last Duke of Argyll was unquestionably one of the most conspicuous and interesting men of his time. Inheritor of an ancient peerage, chief of a great Highland clan, head of an illustrious house that had played a prominent part in the history of his country, possessor of wide estates and surrounded by a numerous and thriving tenantry, he had every advantage which worldly position and hereditary distinction could confer. That he owed much to these gifts of fortune he himself was well aware, and fitly acknowledged. Yet even without them his strong character and vigorous intellect would have assuredly made him a prominent figure in any walk of life that he might have chosen. It will be for ever recorded to his honour that he turned his social advantages to the highest uses. The most accomplished orator of his day in the House of Lords, he held successively various posts as Cabinet Minister, took an active share in the political life of the country, both inside and outside of Parliament, and gained the respect and esteem of all parties in the State. Possessing literary tastes, he became the personal friend of many of the best writers of his time, and having, as he says of himself, "an inborn tendency to write," he showed by the vigour and elegance of his style that he had solid claims to literary eminence. From early youth he was an attentive observer of nature, so that he was led to follow with the keenest interest the developments of modern science, and having ample self-confidence he did not hesitate to take part in the scientific discussions of his day. Whether on public platforms, in periodical literature, or in separate volumes, his tongue and his pen were always busy, either in trenchantly denouncing assertions which he believed to be erroneous or in standing up stoutly for opinions and interests which he felt sure were just and true. But he was ever the high-bred gentleman, who, though a keen controversialist, did not lose sight of the dignity of his order.

The biography of such a man could not fail to be full of interest. It has been edited by his widow, the Dowager Duchess of Argyll, and is comprised in two volumes, whereof the first and about a sixth part of the second consist of an autobiographical fragment. Only begun so late as 1897, this autobiography occupied the writer's leisure hours during the last three years of his life. At his death in 1900, he had brought his narrative no farther than the close of 1857, when he was thirty-four years of age, so that the story of the longest and most active part of his career remained untold. The great blank thus re-

maining has been to some extent supplied by means of extracts from his speeches, letters, and published writings, but these naturally lack much of the personal revelation which gives a charm to the Duke's own tale. The extracts, as well as a large part of the later chapters of the autobiography, deal in great measure with politics, any reference to which would be out of place here. We shall therefore confine this notice of the book to the scientific side of the Duke's career.

No parts of the autobiography are more delightful than those wherein the writer reveals the intensity of his love of nature. Even to those readers who have had most acquaintance with his published writings, but who never came into personal contact with him, this revelation may perhaps be a surprise. His childhood and youth were spent amid country surroundings on the shores of the Firth of Clyde, and being much alone he was brought face to face with birds and trees and flowers, and the ever-changing aspects of sea and sky and mountain. All through life he was delighted to escape from the din and turmoil of politics to find rest and refreshment among his own Highland hills and glens, the ever varying mood of which under sunshine or cloud, from hour to hour, and from season to season, he watched with the most ardent devotion. Nor did he confine himself to the manifold attractions of his environment at Inveraray. For many years he spent a part of each summer yachting among the Western Isles, with most of the rocks and bays of which he became familiar, and over the endless beauties of form and colour of which he lingered with enthusiastic admiration. He had a keen artistic sense, which found expression in many a coloured sketch of the scenes that fascinated him, and has manifested itself in many passages of vivid description in his autobiography. His poetic temperament likewise received constant stimulus from the same marvellous panorama of sea and sky, mountain, islet, and cliff. He had steeped his mind first in the poetry of Wordsworth and then in that of Tennyson, and from time to time the exuberance of his feelings found relief in verse.

From his earliest years the Duke was passionately fond of birds, watching them in their haunts, noting their habits, and in this way acquiring an intimate knowledge of the bird-life of his native country. As an instance of the hold which this pursuit had upon him, he tells how, when he first looked out for a house of his own in London, he went to see one on Campden Hill, with some four acres of land about it. There were various objections to the place, but when he saw a flock of starlings on the lawn, nuthatches climbing the trees, fly-catchers and warblers darting around, "all doubts and difficulties vanished; the birds settled everything"; and he returned to town to instruct his agent to make the purchase. In this way he chose the charming residence which became his London home up to the end of his life. Besides observing the forms and ways of birds, he specially studied their various kinds of flight as a scientific

problem to which he often directed attention in his writings.

Within the domain of science his chief interest, however, lay in geology. Many of the questions with which geology deals relate to familiar aspects of the outer world, and do not require much technical knowledge for their comprehension, though in spite of their apparent simplicity they may demand much knowledge of that nature for their adequate solution. Amid the surroundings of the Duke's boyhood and youth there were many features to attract the notice of anyone with a geological bent. He does not appear, however, to have seriously considered the subject until he was seven-and-twenty years of age. In 1850, when on one of his usual visits to his estates in Mull, he received from a villager at Bunessan some specimens of fossil leaves which had been broken off from the face of a neighbouring sea-cliff. He ascertained that these leaves, evidently of a terrestrial vegetation, came from a stratum intercalated between the sheets of basaltic lava which cover so much of that region. His curiosity being thus thoroughly roused, he sent specimens to the Jermyn Street Museum for examination. Eventually he was encouraged by De la Beche to give an account of the discovery in a paper to the Geological Society, while at the same time Edward Forbes described the leaves, which proved to be of Tertiary age. These papers, published in the summer of 1851, showed for the first time the comparatively late date of the basalt plateau in the west of Mull, and thus fixed an important epoch in the volcanic chronology of this country. So auspicious a beginning might have been expected to become the starting-point of a successful geological career. But the Duke never followed it up. So far as the numerous calls on his time and thought allowed, he tried to keep himself in touch with the progress of research in some of the wider branches of geology, and from time to time, as the result of such intervals of leisure, he wrote articles or gave lectures on the subject. But these efforts of his could hardly be regarded as fresh and solid contributions to the advance of the science.

The Duke of Argyll's interest in facts seemed always to be limited by the extent to which he perceived, or thought he could perceive, their meaning, connection, and causes. Fundamentally, he lacked the patience and restraint that characterise the true man of science. His lively imagination was apt to see in the facts what he expected or wished to see, and he was tempted to group and explain them in accordance with some conception he had formed regarding them, and to leave out of sight as irrelevant those other facts which did not fit in with his interpretation. Thus, in regard to geological theory, he had early in life adopted the belief of the old Catastrophist school that the inequalities on the surface of the land have been mainly determined by gigantic earth-movements, and, shutting his eyes to all the arguments of those who pointed to the proofs of the enormous share taken by denudation in the

shaping of that surface, he continued to maintain the same belief up to the last. Again, having in his younger days adopted what was long the prevalent opinion that some of the latest touches to the landscapes of this country were given by icebergs and floes during a time of submergence, he stoutly adhered to this doctrine, and lost no opportunity of ridiculing the conclusions of those who maintained that the phenomena in question could only be explained by the observed action of land-ice. But ridicule was not argument. Neither on this subject nor on that of the origin of scenery does the Duke appear ever to have studied the detailed evidence on the ground and grappled with it in a careful and candid examination of the facts. To use one of his own phrases, which he applies to some ecclesiastical tendencies of Gladstone, there was "a fundamental indelibility in his opinions" on scientific problems regarding which he had once made up his mind.

The Duke began his public career by a series of pamphlets and other writings on the ecclesiastical matters which at that time were agitating Scotland. In these publications he showed that he possessed no small share of the logical and metaphysical habit of mind so common among his fellow-countrymen. In his writings on scientific subjects, wherein he was often rather the keen critic than the sympathetic advocate, he found scope for the manifestation of the same mental characteristic. His three volumes, "The Reign of Law," "The Unity of Nature," and "The Philosophy of Belief," may be particularly cited as illustrations of his treatment of scientific questions. A period of thirty years intervened between the appearance of the first and that of the last of these books, which, in their author's words, represented his opinions on "the greatest of all subjects—the philosophy of religion in its relations with the philosophy of science." Even where scientific men differed most widely from him in his dealing with the problems which he discussed, they could not but recognise the intense earnestness and obvious loftiness of his purpose, the vigour with which he plied his arguments, and the fearless and sometimes acute criticism to which he subjected some of the generally accepted opinions of the evolutionary school of the day.

Nevertheless, it must be admitted that the general impression made on the minds of the Duke's opponents by his declamation in these controversies was that he hardly ever had a doubt about any statement which he propounded. Scientific readers of his articles and books would express their amusement at what they styled his cocksureness, even in questions of difficult research regarding which he had no direct and first-hand knowledge. Such readers when they turn to his Autobiography may well rub their eyes when they meet there with the following statement:—

"I have never had any tendency to a dogmatic temperament. On the contrary, I have always had an ingrained liability to doubt."

He affirms that it was only where he had reached

"the most assured convictions" that he deemed it "not only justifiable but a positive duty to express such convictions with all the certainty that is felt." The "certainty," however, extended to so many subjects that he might well remark that "some, perhaps many, of my contemporaries in my later years have thought me very confident in my opinions, and very aggressive in my expression of them." He complained of Huxley's aggressive style of writing, but when he penned his strongly-worded articles and letters he seems to have been unconscious that the same complaint might not seldom be brought against himself.

There is no intimation in these volumes to what, if any, extent the author of the Autobiography had journals or letters to rely upon in writing it. The preface states that "memory was invoked to bring back from the storehouse of the past all that had specially impressed him." That he had a tenacious memory can well be believed, but it has undoubtedly played him false in a number of instances, some of which are to be regretted. Thus he misdates certain transactions by a whole year. He refers to Lady Lyell, whom he intimately knew and admired, as "a sister of Leonard Horner, a man of whom much had been expected by his college friends, from his eminent abilities." Lady Lyell, however, was the daughter, not the sister, of Leonard Horner, and the Duke confounds two brothers. It was Francis Horner who passed away comparatively young; Leonard, who wrote an excellent memoir of his brother, lived until 1864, when he died in the seventy-ninth year of his age.

A more extraordinary mistake occurs on p. 289 of the Autobiography in the following sentence:—

"It does seem a marvellous fact that no knowledge of the wonders of Staffa had ever reached the world till it had been visited and described by a scientific Englishman, Sir Stamford Raffles."

Now Staffa, though not belonging to the Duke of Argyll, lies near to his favourite island of Iona, and opposite to his estates in Mull. He had been intimately familiar with it during many cruises among the isles, and must be supposed to have been acquainted with that classic of Scottish geographical description, Pennant's second "Tour in Scotland," in which so much of the scenery, natural history, and antiquities of the kingdom was for the first time described and figured. That volume was published in 1774, and one of its distinguishing features was the appearance in it of the earliest account of the wonders of Staffa, communicated to the author by no less a personage than Joseph Banks, afterwards the distinguished president of the Royal Society, who likewise contributed a number of excellent drawings of the cliffs and caves of the island, which were reproduced by Pennant, and form some of the best plates in his book. Sir Stamford Raffles, who spent his life in the East, was not born until 1781, seven years after the account of Staffa had been given to the world. He and Banks were both "scientific English-

men" and great travellers, though how the Duke came to confound the one with the other is difficult to understand.

Another error, more serious than a mere lapse of memory, is to be found on p. 350, where it is gravely asserted that

"Smith of Jordanhill was the real founder of the Glacial Theory, which has played so great a part in recent geology. It is commonly assigned to Agassiz, but he did not visit this country till 1840."

No one would for a moment wish to disparage the importance of the discovery made by James Smith in 1839, when he found among the extinct shells of the Clyde basin a number of northern forms, and concluded from them that "it seems probable that the climate of Europe was colder during the newest Tertiary than during the Recent period." But he did not venture to propound a "theory" of any kind, nor did he refer to ice in any form. Agassiz, however, though he did not visit this country until 1840, had already spent some years in the study of glacial phenomena among the Alps, and as far back as 1837 had announced his opinions as to the former greater extension of the ice of central Europe and of the northern hemisphere. When he came to Britain he was able to demonstrate the existence here of the same types of glaciation as are found in Switzerland, and he thus produced further overwhelming evidence in favour of the views which he had already published. The Duke has here suffered his antagonism to these views to blind him to the historical facts of the case, and the same spirit of opposition has led him to conclude his reference to the subject with a characteristically sarcastic allusion to the "fads and faddists" that have followed in the track of the great Swiss naturalist.

It is in many ways a misfortune that the Duke of Argyll did not live to carry his Autobiography down through the central and later parts of his life, and to review in the calm of his old age the controversies, scientific and other, in which he had been engaged. The din of conflict had long ceased, and many of those with whom he had crossed swords had passed away. It would have been interesting and instructive to learn from his own pen how the questions in debate looked to him after the long lapse of years; to discover whether time had modified the confident assurance with which he used to do battle, or had left him in the same convinced and defiant frame of mind in which he fought. Up to their close, his chapters reveal not the slightest symptom of the mental enfeeblement of old age. Indeed, he never wrote more vigorously or with more apparently voluble ease than in this Autobiography. It contains many passages which might be collected as examples of an admirable style of composition, and among his varied contributions to literature it will not be surprising if this latest effort of his pen shall outlast in general acceptance any of his previous writings.

The chapters which follow the Autobiography give a most inadequate picture of what the Duke was in his prime and of what he did. The chapter on his

science is particularly disappointing. It consists almost wholly of disconnected excerpts from letters to or from correspondents, interesting enough in themselves, but embodying no connected review of his relations to science, and leaving the reader very much in the dark as to what these relations really were. The truth is that, what with politics on the one side and the management of his estates on the other, the Duke had but little time for other occupations. Science was to him not so much a serious study as a refreshing relaxation. Even had he undergone the training and possessed the special mental gifts which go to make the successful man of science, he could hardly have found room for their exercise in his busy life. His mind, however, was so active, that such intervals of leisure as he could secure sufficed to enable him to keep himself informed of what was being done in various important lines of investigation. And it was this course of interrupted reading and the thoughtful reflection that accompanied and followed it, rather than any original inquiry of his own, that blossomed out into the lectures, addresses, articles, and books which came in such a crowded procession from his pen. His death left a blank in society which has been filled by no one of his contemporaries. Few men of his class were endowed with so remarkable a mental versatility and took such an eager interest in all kinds of intellectual pursuits. He will be remembered as an illustrious example of a type too rare among us, wherein the *grand seigneur*, the statesman, the man of letters, and the lover of nature and of science are blended in one noble character.

CHEMISTRY AND THE DETECTION OF CRIME.

Lehrbuch der gerichtlichen Chemie. Zweite gänzlich umgearbeitete Auflage, bearbeitet von Dr. Georg Baumert, Dr. M. Dennstedt, und Dr. F. Voigtländer. Vol. ii. Pp. x+248. (Brunswick: F. Vieweg and Son, 1906.) Price 9 marks.

IN addition to cases of alleged poisoning, there exist a number of crimes in the detection of which chemical and physical science can render special aid to the dispensation of justice. Thus, in proving the falsification of documents, in demonstrating a forgery, in the identification of blood-stains or other body-secretions, and in the discovery of evidence confirming a charge of incendiarism, the results of a capable scientific examination will often furnish a direct proof, where otherwise the verdict would depend upon a mere balancing of probabilities.

The second part of Dr. Baumert's "*Lehrbuch*" deals exhaustively with the foregoing problems. Particular attention is devoted to the photography involved, and in the investigations described much use is made of this adjunct. In fact, the expert in criminological chemistry, if he is to render all the assistance possible, must be not merely a chemist, but a combination of photographer, microscopist, and detective as well.

About three-fifths of the volume is devoted to the methods of discovering and demonstrating fraudulent alterations of documents. The treatment is very complete, embracing as it does not only the microscopical examination of the written characters, the chemical testing of the ink and paper, and the indications of erased or altered letters brought out by photographic enlargement, but also the consideration of pencil marks and "secret" inks.

Some fifty pages are assigned to the examination of blood-stains, and include a careful description of the conditions which should be employed in carrying out the "biological" test for the characterisation of human blood. The authors think, in opposition to Uhlenhuth, that, given the requisite knowledge of bacteriology and physiology, the analyst rather than the medical man should be entrusted with this experiment. A good plate shows the absorption spectra of hæmoglobin and its congeners, and, indeed, a word of praise is due to the excellent photographic reproductions with which the book generally is furnished. Next follows a short chapter on the examination of suspected articles for the presence of human spermatozoa, whilst the last thirty pages deal with the evidence of incendiary origin which the chemist may find on closely scrutinising such objects as may have been left undestroyed where a fire has broken out.

Throughout the book careful directions are given for conducting the various operations, and numerous pitfalls which beset the unwary are indicated. As is befitting where serious charges are concerned, clear distinctions are drawn between the results which constitute proof and those which, however strongly confirmatory, are not in themselves decisive. The general impression left by a perusal of the volume is that in the solution of the crime-problems dealt with the guidance afforded is admirably practical and safe.

C. S.

NERVOUS DISEASE.

The Management of a Nerve Patient. By Dr. A. T. Schofield. Pp. ix+267. (London: J. and A. Churchill, 1906.) Price 5s. net.

WE cannot congratulate Dr. Schofield on the title he has selected, for a book written, as the author tells us, for the use of students and practitioners requires no such popular designation as "*The Treatment of a Nerve Patient*." Further, the writer does himself an injustice, for many medical men would not trouble to read a book the title of which suggests some words of advice for a nurse or layman.

Now we consider this little manual well worthy of a careful perusal, for although we do not agree by any means with all that the writer tells us, nevertheless it is a book full of valuable suggestions and advice. We agree with the statement that "many physicians do not sufficiently recognise the influence of mind over body," but Dr. Schofield, in his desire